In the claims:

1.(Original) A servo circuit, comprising:

a servo channel operable to recover servo data from servo wedges that identify respective data sectors on a data-storage disk; and

a processor coupled to the servo channel and operable to detect a first spin-up wedge associated with a first one of the servo wedges and then to detect the first servo wedge while the disk is attaining or after the disk attains an operating speed and before the servo channel recovers servo data from any other servo wedge.

2.(Original) The servo circuit of claim 1 wherein the processor is operable to cause the servo channel to recover servo data from the first servo wedge after the processor detects the first servo wedge and before the servo channel recovers servo data from any other servo wedge.

3.(Original) The servo circuit of claim 1 wherein:

the first spin-up wedge comprises a zero-frequency field; and

the processor is operable to detect the first spin-up wedge by detecting the zero-frequency field.

4.(Original) The servo circuit of claim 1 wherein:

the first servo wedge comprises a preamble; and

the processor is operable to detect the first servo wedge by detecting the preamble.

5.(Original) The servo circuit of claim 1 wherein:

the first spin-up wedge comprises a zero-frequency field;

the first servo wedge comprises a preamble that follows and that is contiguous with the zero-frequency field; and

the processor is operable to detect the first spin-up wedge by detecting the zero-frequency field and is operable to detect the first servo wedge by detecting the preamble after detecting the zero-frequency field.

6.(Original) The servo circuit of claim 1 wherein:

the first servo wedge comprises a preamble and a servo synchronization mark following the preamble;

the processor is operable to detect the first servo wedge by detecting the preamble; and

the servo channel is operable to recover the synchronization mark in response to the processor detecting the preamble.

7.(Original) The servo circuit of claim 1, wherein:

the first servo wedge and a second servo wedge following the first servo wedge each comprise a preamble and a servo synchronization mark following the preamble;

the processor is operable to detect the first servo wedge by detecting the preamble of the first servo wedge;

the servo channel is operable to recover the synchronization mark of the first servo wedge in response to the processor detecting the preamble of the first servo wedge;

after detecting the first servo wedge, the processor is operable to detect the second servo wedge by detecting the preamble of the second servo wedge; and

the servo channel is operable to recover the synchronization mark of the second servo wedge in response to the processor detecting the preamble of the second servo wedge.

8.(Original) The servo circuit of claim 1, wherein:

the first spin-up wedge and a second spin-up wedge following the first spin-up wedge each comprise a zero-frequency field;

the first servo wedge and a second servo wedge following the one servo wedge each comprise a preamble and a servo synchronization mark following the preamble;

the processor is operable to detect the first spin-up wedge by detecting the zero-frequency field of the first spin-up wedge;

the processor is operable to detect the first servo wedge by detecting the preamble of the first servo wedge after detecting the first spin-up wedge;

the servo channel is operable to recover the synchronization mark of the first servo wedge in response to the processor detecting the preamble of the first servo wedge;

after recovering the synchronization mark of the first servo wedge, the processor is operable to detect the second spin-up wedge by detecting the zero-frequency field of the second spin-up wedge;

the processor is operable to detect the second servo wedge by detecting the preamble of the second servo wedge after detecting the second spin-up wedge; and

the servo channel is operable to recover the synchronization mark of the second servo wedge in response to the processor detecting the preamble of the second servo wedge.

9.(Original) The servo circuit of claim 1, wherein:

the first spin-up wedge comprises a zero-frequency field;

the servo channel is operable to generate a zero-frequency or approximately zero-frequency read signal that represents the zero-frequency field and to sample the read signal; and

the processor is operable to,

compare samples of the read signal to a threshold, and

detect the first spin-up wedge if a predetermined number of consecutive samples each have a predetermined relationship to the threshold.

10.(Original) The servo circuit of claim 1, wherein:

the first spin-up wedge comprises a zero-frequency field;

the servo channel is operable to generate a zero-frequency or approximately zero-frequency read signal that represents the zero-frequency field and to sample the read signal; and

the processor is operable to,

compare samples of the read signal to a threshold, and

search for the first spin-up wedge until a predetermined number of consecutive samples each have a predetermined relationship to the threshold.

11.(Original) The servo circuit of claim 1 wherein the first spin-up wedge is disposed within the first servo wedge.

12.(Original) The servo circuit of claim 1 wherein:

the first spin-up wedge comprises a zero-frequency field;

the first servo wedge comprises a preamble;

the servo channel is operable to generate a zero-frequency or approximately zero-frequency read signal that represents the zero-frequency field and to sample the read signal; and

the processor is operable to,

compare samples of the read signal to a threshold, and

detect the first spin-up wedge if the processor detects the preamble of the first servo wedge within a predetermined range of consecutive samples that have a predetermined relationship to the threshold.

13.(Original) The servo circuit of claim 1 wherein:
the first spin-up wedge comprises a zero-frequency field;
the first servo wedge comprises a preamble;
the servo channel is operable to generate a zero-frequency or approximately zero-frequency read signal that represents the zero-frequency field and to sample the read signal; and
the processor is operable to,
compare samples of the read signal to a threshold, and
detect the first spin-up wedge if the processor detects the preamble of the first servo wedge within a predetermined range of consecutive samples that are less than the threshold.

14.(Original) The servo circuit of claim 1 wherein:
the first spin-up wedge comprises a zero-frequency field;
the first servo wedge comprises a preamble;
the servo channel is operable to generate a zero-frequency or approximately zero-frequency read signal that represents the zero-frequency field and to sample the read signal; and
the processor is operable to,
compare samples of the read signal to a threshold, and
detect the first spin-up wedge if the processor detects the preamble of the first servo wedge within a predetermined window of consecutive samples that are less than or equal to the threshold.

15.(Original) The servo circuit of claim 1 wherein:
the first spin-up wedge comprises a zero-frequency field;
the first servo wedge comprises a preamble;
the servo channel is operable to generate a zero-frequency or approximately zero-frequency read signal that represents the zero-frequency field and to sample the read signal; and
the processor is operable to,

compare samples of the read signal to a threshold,

search for the preamble of the first servo wedge in response to a first predetermined number of consecutive samples that each have a predetermined relationship to the threshold, and

detect the first spin-up wedge if the processor detects the preamble within a second predetermined number of consecutive samples that follow the first predetermined number of consecutive samples.

16.(Original) The servo circuit of claim 1 wherein:

the first spin-up wedge comprises a zero-frequency field;

the first servo wedge comprises a preamble;

the servo channel is operable to generate a zero-frequency or approximately zero-frequency read signal that represents the zero-frequency field and to sample the read signal; and

the processor is operable to,

compare samples of the read signal to a threshold,

search for the preamble of the first servo wedge in response to a first predetermined number of consecutive samples that have a predetermined relationship to the threshold, and

detect the first spin-up wedge if the processor detects the preamble within a second predetermined number of consecutive samples that immediately follow the first predetermined number of consecutive samples.

17.(Original) The servo circuit of claim 1 wherein:

the first spin-up wedge comprises a zero-frequency field;

the first servo wedge comprises a preamble;

the servo channel is operable to generate a zero-frequency or approximately zero-frequency read signal that represents the zero-frequency field and to sample the read signal; and

the processor is operable to,

compare samples of the read signal to a threshold,

search for the preamble of the first servo wedge in response to a first predetermined number of consecutive samples that have a predetermined relationship to the threshold, and

abort the search for the preamble of the first servo wedge if the processor does not detect the preamble within a second predetermined number of consecutive samples that immediately follow the first predetermined number of consecutive samples.

18.(Original) The servo circuit of claim 1 wherein:

the first servo wedge comprises a preamble;

the servo channel is operable to generate a read signal that represents the preamble and to sample the read signal;

the processor is operable to detect the first servo wedge by detecting the preamble from the samples;

the servo channel comprises an interpolator loop that acquires the timing of the samples with respect to the read signal while the processor is detecting the preamble and that begins tracking the timing of the samples a predetermined time after the processor detects the preamble; and

the processor is operable to stop the interpolator loop from tracking the timing of the samples if the processor fails to detect the preamble for at least a predetermined number of samples after the interpolator loop begins tracking the timing of the samples.

19.(Original) The servo circuit of claim 1 wherein the one servo wedge comprises a binary sequence having groups of no more and no fewer than a predetermined number of consecutive bits each having a first logic level, the groups separated from each other by respective bits having a second logic level.

20.(Original) A servo circuit, comprising:

a servo channel operable to recover servo data from servo wedges that identify respective data sectors on a data-storage disk; and

a processor coupled to the servo channel and operable to detect first and second portions of one of the servo wedges while the disk is attaining or after the disk attains an operating speed and before the servo channel recovers servo data from any other servo wedge.

21.(Original) The servo circuit of claim 20 wherein:

the first portion of the one servo wedge comprises a spin-up wedge; and

the second portion of the servo wedge comprises a preamble.

22.(Original) The servo circuit of claim 20 wherein the processor is operable to detect the first portion of the one servo wedge before detecting the second portion.

23.(Original) A disk-drive system, comprising:

a data-storage disk having a surface, data sectors at respective locations of the surface, servo wedges that each include respective servo data that identifies the location of a respective data sector, and spin-up wedges that each include spin-up data and that are respectively associated with some or all of the servo wedges;

a motor coupled to and operable to rotate the disk;

a read head operable to generate a read signal that represents the servo data and and the spin-up data, the read head having a position with respect to the surface of the data-storage disk;

a read-head positioning circuit operable to move the read head over the surface of the disk; and

a servo circuit coupled to the read head and to the read-head positioning system, the servo circuit including,

a servo channel operable to recover the servo data from the servo wedges and the spin-up data from the spin-up wedges; and

a processor coupled to the servo channel and operable to detect a spin-up wedge associated with one of the servo wedges and then to detect the servo wedge while the disk is attaining or after the disk attains an operating speed and before the servo channel recovers servo data from any other servo wedge.

24.(Original) The disk-drive system of claim 23 wherein:

the servo channel is operable to recover the servo data from the detected servo wedge; and

the servo circuit is operable to,

determine an initial position of the read head from the recovered servo data, and

provide the initial position to the read-head positioning circuit.

25.(Original) The disk-drive system of claim 23 wherein the servo channel is operable to recover the servo data from the detected servo wedge and to provide the location of the respective data sector to the read-head positioning circuit.

26.(Original) The disk-drive system of claim 23 wherein:

the servo channel is operable to recover the servo data from the detected servo wedge and to provide the location of the respective data sector to the read-head positioning circuit; and

the read-head positioning circuit is operable to determine an initial position of the read head from the location of the respective data sector.

27.(Original) The disk-drive system of claim 23 wherein the read-head position circuit and the servo circuit are unable to determine the position of the read head before the processor detects the one servo wedge.

28.(Original) The disk-drive system of claim 23 wherein the read head comprises a read-write head.

29.(Original) A disk-drive system, comprising:

a data-storage disk having a surface, a data sector at a location of the surface, and a servo wedge including servo data that identifies the location of the data sector;

a motor coupled to and operable to rotate the disk;

a read head operable to generate a read signal that represents the servo data and having a position with respect to the surface of the data-storage disk;

a read-head positioning system operable to move the read head over the surface of the disk; and

a servo circuit coupled to the read head and to the read-head positioning system, the servo circuit including,

a servo channel operable to recover the servo data from the servo wedges; and

a processor coupled to the servo channel and operable to detect first and second portions of one of the servo wedges while the disk is attaining or after the disk attains an operating speed and before the servo channel recovers servo data from any other servo wedge.

30.(Currently Amended) A method, comprising:

rotating a data-storage disk having a surface from a first rotational speed to a second rotational speed over a first time period, the cirumferential position of a read head relative to a location of the disk surface being unknown for at least a portion of the first time period;

during or after the first time period and while the circumferential position of the read head is unknown,

detecting spin-up data, and

after detecting the spin-up data, detecting servo data that identifies a sector of the data-storage disk; and

recovering sector location identifying data from the detected servo data and determining the circumferential position of the read head from the recovered ~~detected~~ servo data before recovering sector location identifying data from any other sector.

31.(Original) The method of claim 30 wherein the second rotational speed is higher than the first rotational speed.

32.(Original) The method of claim 30 wherein detecting the spin-up data comprises:

sampling data from the disk surface;

counting the number of consecutive samples that have a predetermined relationship to a threshold; and

detecting the spin-up data if the number of consecutive samples equals a predetermined number.

33.(Original) The method of claim 30 wherein:

detecting the spin-up data comprises,

sampling data from the disk surface, and

counting the number of consecutive samples that have a predetermined relationship to a threshold; and

detecting the servo data comprises,

searching for the servo data if the number of consecutive samples equals a predetermined number; and

detecting the servo data if a portion of the servo data is within a predetermined sampling window following the predetermined number of consecutive samples.

34.(Original) The method of claim 30 wherein:

detecting the spin-up data comprises,

sampling data from the disk surface, and

counting the number of consecutive samples that have a predetermined relationship to a threshold; and

detecting the servo data comprises,

searching for the servo data if the number of consecutive samples equals a predetermined number; and

detecting the servo data if a portion of a servo-data preamble is within a predetermined sampling window following the predetermined number of consecutive samples.

35.(Currently Amended) The method of claim 30 wherein detecting the spin-up data and servo data comprises accurately detecting a predetermined number of spin-up wedges and servo wedges before recovering location identifying data and causing the recovered location identifying data to determine ~~determining~~ the circumferential position of the read head.